

CURRICULUM VITAE

Dr. Ahmad Najmuddin Bin Ibrahim

Pensyarah Universiti (Senior Lecturer)
Faculty of Manufacturing & Mechatronic Engineering Technology
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RESEARCH METRICS

Total Citations 131	h-index 6	i10-index 4	Since 2021 89 citations
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ACADEMIC QUALIFICATIONS

Doctor of Engineering (D.Eng.) *Industrial Science / Robotics Engineering* Ibaraki University, Japan | 2017

Master of Engineering (M.Eng.) *Mechatronic Engineering* Ibaraki University, Japan | 2013

Bachelor of Engineering (B.Eng.) *Mechatronic Engineering* Ibaraki University, Japan | 2011

PROFESSIONAL PROFILE

Dr. Ahmad Najmuddin bin Ibrahim is a Senior Lecturer (Pensyarah Universiti, Grade DS13-A) at the Faculty of Manufacturing & Mechatronic Engineering Technology, Universiti Malaysia Pahang Al-Sultan Abdullah. His research focuses on robotics engineering, mobile robotics, and mechatronic systems, with particular expertise in autonomous wheeled robots for agricultural applications, rover locomotion in challenging terrains, and assistive grouser mechanisms for soft sand surfaces. He has published extensively in international journals and conferences, with 131 total citations and an h-index of 6. Dr. Najmuddin actively collaborates with Ibaraki University, Japan, and seeks partnerships with universities and industries worldwide.

AREAS OF EXPERTISE

- **Robotic Mechanical System Design** (High expertise, 5+ years)
- **Discrete Element Modeling (DEM)** (Moderate expertise, 1+ year)
- **Mechanical-Electronics Systems Integration** (High expertise, 5+ years)
- Mobile Robotics and Autonomous Navigation
- Rover Locomotion in Soft Terrains
- Agricultural Automation Systems

CURRENT POSITIONS & RESPONSIBILITIES

Head of Programme Bachelor of Mechatronic Engineering Technology (Robotics) January 2025 – Present

Senior Lecturer (Pensyarah Universiti, DS13-A) Faculty of Manufacturing & Mechatronic Engineering Technology December 2024 – Present

Previous Positions: • Pensyarah Universiti (DS51-A): February 2021 – November 2024 • Head of Programme: January 2021 – December 2024 • Lecturer: May 2017 – January 2021

TEACHING EXPERIENCE

Core Courses Taught (2017 – Present):

- Microcontroller System (BFM3333)
- Robotic Prototype Design (BFM4533)
- Robotics System Modelling (BTX2643)
- Capstone Project (BTI3623, BTT3623)
- Control System Engineering (BHM4103, BFF4103)
- Engineering Dynamics (BTM1223)
- Computer Programming (BFF2003, BHM2003)
- Industrial Automation (BHM4704)

Teaching Evaluation: Consistently high ratings (85-98%) across all courses from 2017-2025

RESEARCH SUPERVISION

Doctoral (Ph.D.) Students:

1. *Nor Hazwani Binti Mohd Yusof* (Active, started Oct 2025) Design and Performance Analysis of Prototype Modular Wheeled Unmanned Ground Vehicle
2. *Mochamad Edoward Ramadhan* (Active, started May 2024) Outdoor Robot Wheel Design for Effective Use in Agriculture

Master's (M.Sc.) Students:

1. *Ibrahim Belal Mogbhawry Mohamed* (Terminated, 2021) Enhancing Laser Simulator for Path Planning Processing
2. *Harun Dzulquornain Bin Idris* (Deferred, 2020) Development and Performance Evaluation of UWB+IMU Navigation
3. *Intan Nur Aqiella Binti Che Aziz* (Deferred, 2019) Mathematical Analysis of Wheel-Soft Soil Interaction
4. *Siti Suhaila Binti Sabarudin* (Graduated, 2017-2019) 2D Simulation of Assistive Grouser Mechanism Using DEM

ACTIVE RESEARCH PROJECTS

Principal Investigator:

- **Automated Cleaning and Monitoring of HVAC Duct Using Mobile Robot** (RDU243812, UIC240849) | 2024-2026

- **Grouser Effect Contact Modelling in Cohesive Unstructured Terrains** (RDU230135) | 2023-2025

Co-Investigator:

- **DREBAR Education Robotic Module for ADTEC Kemaman** (CDU240136) | 2024-2025
- **Development of Remotely Underwater Cleaning Robot** (SPU230102) | 2023-2024

COMPLETED RESEARCH PROJECTS (AS PRINCIPAL INVESTIGATOR)

- 1. Development of Autonomous Mobile Robot for Optimum HVAC Duct Cleaning** (RDU212402, UIC210810) | 2021-2022 Status: Completed (Partially achieved KPI)
- 2. Projek Khas Robotik** (SPU220101) | 2022 Status: Completed (Final report under review)
- 3. Mathematical Analysis of Wheel-Soft Soil Interaction for Lightweight Vehicle Wheel with Variable Grouser Angle Mechanism** (RDU190115) | 2019-2021 Status: Completed (Did not achieve KPI)
- 4. Simulation of Assistive Grouser Mechanism for Use on Lightweight Wheeled Robot for Traversing on Unconsolidated Soft Sand Inclines** (PGRS190373) | 2019-2021 Status: Completed (Final report under review)
- 5. Design Strategy of Stuck Recovery for Wheel Embedded Under the Surface of an Unconsolidated Soft Sand Incline** (RDU180384) | 2018-2020 Status: Completed (Partially achieved KPI)
- 6. Simulation of Assistive Grouser Mechanism for Use on Lightweight Wheeled Robot for Traversing on Unconsolidated Soft Sand Inclines** (RDU1703191) | 2017-2019 Status: Completed (Partially achieved KPI)

SELECTED HIGH-IMPACT PUBLICATIONS

Highly Cited Works (10+ citations):

- 1. Ahmad Najmuddin Ibrahim, S. Aoshima, N. Shiroma, Y. Fukuoka. *The effect of assistive anchor-like grousers on wheeled rover performance over unconsolidated sandy dune inclines.* Sensors 16, no. 9 (2016): 1507. [14 citations]**
- 2. Y. Fukuoka, R. Komatsu, K. Machii, M. Yokota, M. Tobe, A.N. Ibrahim, et al. *Pace running of a quadruped robot driven by pneumatic muscle actuators: an experimental study.* Applied Sciences 12, no. 9 (2022): 4146. [14 citations]**
- 3. Y. Fukuoka, K. Oshino, A.N. Ibrahim. *Negotiating uneven terrain by a simple teleoperated tracked vehicle with internally movable center of gravity.* Applied Sciences 12, no. 1 (2022): 525. [13 citations]**
- 4. A. Najmuddin, Y. Fukuoka, S. Ochiai. *Experimental development of stiffness adjustable foot sole for use by bipedal robots walking on uneven terrain.* 2012 IEEE/SICE International Symposium on System Integration. [23 citations]**

Complete publication list: 27 peer-reviewed publications (2012-2024) including journal articles, conference papers, and book chapters.

UNIVERSITY SERVICES

Head of Programme Bachelor of Mechatronic Engineering Technology (Robotics) January 2021 - Present

Advisor/Escorting Officer for Student Competitions:

- National Instruments Autonomous Robotics Competition 2019 Universiti Sains Malaysia | November 12-14, 2019
- Pertandingan Robocon Malaysia 2019 Kementerian Pengajian Tinggi, UNITEN | April 4-7, 2019
- Pertandingan University Robot Competition 2019 Universiti Malaysia Perlis, Kampus Pauh Putra | September 21-22, 2019
- Pertandingan University Robot Competition 2018 Universiti Malaysia Perlis, Kampus Pauh Putra | October 12-13, 2018

AWARDS & RECOGNITION

- **GOLD Medal** - International Invention, Innovation & Technology Exhibition (ITEX) 2024
Project: Remotely Underwater Cleaning Robot
- **SILVER Medal** - International Invention Innovation & Technology Exhibition (ITEX) 2023
Project: Agronetics IoT Based Smart Farming System

PROFESSIONAL AFFILIATIONS

- **Institute of Electrical and Electronics Engineers (IEEE)** - International Professional, 2018-present
- **Board of Engineers Malaysia (BEM)** – Graduate Engineer, 2018-present

Last Updated: January 2026